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ABSTRACT

Thirty sixth grade teachers and their students participated in a motivation training program. The program was based on Charm's theory of personal causation which postulates that "Man's primary motivation is to be effective in causing changes in his environment." When a person feels he is in control of his fate he is positively motivated and confident and acts like an Origin. When his is controlled he is relatively powerless and acts like a Pawn. In order to facilitate the motivation of others teachers must treat pupils like Origins and not Pawns and thus activities were planned that would help children learn more about their motives and how to reach their goals. The trained pupils felt more like Origins than those in an untrained control group. The training helped improve academic performance and helped pupils set more realistic goals and be more successful in reaching them. It appears that goal-setting strategy is related to academic performance because children who set unrealistically high goals tended to perform poorly in school work. It also appears that one's feeling of potency is related to goal-setting because more potent subjects tended to set realistic goals while powerless subjects tended to set very high goals. (RSM)

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CONTROL OF REINFORCEMENT, GOAL-SETTING, AND ACADEMIC BEHAVIOR

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During the 1967-68 and 1968-69 school years, thirty teachers and their students participated in a motivation training program. Some of the results of the first year's training with sixth grade teachers and their students were reported in a paper entitled: Can the motives of low-income Black children be changed? That paper was presented in a symposium at the 1969 AERA meetings in Los Angeles (see de Charms, et al., 1969).

The purpose of this paper is to review the essentials of the training program, discuss some of the initial evidence which indicated that it was effective, and present some recent data that may shed some light on important dimensions relevant to motivation in the schools.

MOTIVATION TRAINING

The motivation training course for teachers is a modification of the achievement motivation training course developed by David McClelland (1965, 1969). The course is conducted with a group of approximately fifteen teachers plus one or two trainers. This total group works together for about ten hours a day for five days in a retreat setting (a detailed analysis of the training course may be found in Shea and Jackson, 1969). We have worked with four groups of teachers and administrators in the past three years, although the data presented here relate only to the first year's training. De Charms (1970) will report additional data concerning the first two years of training.

The training course is similar to the original achievement motivation training program in that it is designed to help the participants examine their own needs and motives and to provide them with knowledge about how a "motivated"

person behaves in fulfilling his needs. Basically, the course is designed to teach the participants that a "motivated" person: (a) takes personal responsibility for his behavior; he acts rather than waiting to be acted upon; (b) sets realistic goals based on knowledge of his ability; (c) plans carefully the steps he needs to take to reach his goals; and (d) uses all available knowledge in setting and modifying goals.

The teacher training course differs from the original achievement training course in that it pays particular attention to the question: "How can one facilitate another's motivation?" Borrowing heavily from de Charm's theory of personal causation (de Charms, 1968), the course is designed to show that "man's primary motivation is to be effective in causing changes in his environment" (de Charms, 1968). When a person feels that he is in control of his fate, he is "positively motivated, optimistic, confident, accepting of challenge" (de Charms, et al., 1969). When he feels that way, we say that he is acting like an Origin. When he is being controlled or pushed around he is relatively powerless and he feels like a Pawn. In order to facilitate the motivation of others, we feel that the teacher must not treat his students like Pawns, but must help them to act like Origins. The teacher does this by understanding the needs of his students, by treating them with respect, and by teaching them to take personal responsibility for their behavior. This method of facilitating the motivation of others is illustrated by the use of role plays and other experiential exercises that deal with the effects of different strategies of influence, especially in the classroom.

TRAINING IN THE CLASSROOM

After the week training course, we worked with the teachers in designing classroom activities that would help the students learn about their motives and learn how to reach their goals. The first unit designed was a "Who am I?" activity. This was followed by a story-writing exercise in which the children learned words related to achievement motivation. Later on in the year a spelling bee was designed to illustrate strategies of goal setting and risk-taking behavior. Finally, the children were given an Origin Manual which was programmed to help them set their own goals. Thus the students who were trained had the benefit of having teachers committed to treating them like Origins plus they were given training similar to that in the achievement training course (see de Charms, et al., 1969 for a more detailed description of the classroom training).

METHODOLOGY IN EVALUATION

In attempting to evaluate the training programs several measures were administered to trained (experimental) students and a comparable group of untrained (control) students. For my dissertation research I (Shea) wanted to look at three questions as one part of the evaluation:

(a) Did the trained children feel more like Origins after the training? In other words, did they feel more potent?

(b) Did the trained children set more realistic goals after the training? Were they more successful in reaching goals?

(c) Did the "potent" children set more realistic goals than those who felt relatively impotent. Previous data in the field indicated that those who feel relatively powerless set either very low goals or very high (risky) "pie-in-the-sky" goals.

At the time of the evaluation of the first year no measure of the Origin-Pawn variable had been developed to a degree for use in a dissertation, so I chose the Children's Picture Test of the internal-external control of reinforcements variable to measure the potency-powerless dimension. The measure had been developed by Battle and Rotter (1963), and validation studies had indicated that "internals" felt and behaved in a manner similar to our conception of an "Origin," while "externals" felt oppressed (like Pawns) and set very risky goals that indicated a high fear of failure. The CPT was administered to 100 experimental and 100 control children randomly chosen from the available school population.

The measure of goal setting had been developed by Carpenter (1968) and had been used in our previous research. After taking an arithmetic test and after seeing his performance on that test, a child was asked to attempt to solve ten similar problems. Those problems could be chosen from any or all of six levels of difficulty ranging from very easy to extremely difficult. Again, the goal-setting measure was individually administered to the 200 children.

RESULTS

The first analysis of the results tested the hypothesis that trained children would score more "internal" on the CPT, while untrained children would score more "external." Although the data at that time provided no support for the hypothesis, we have some data on a recently developed content-analytic measure of the Origin-Pawn variable that indicate that the trained children felt more like Origins, even though they didn't feel more "internal." The new Origin-Pawn measure includes scoring categories similar to those used in the CPT, but adds additional dimensions, including goal realism, to the

scoring system. One of the criticisms of the CPT measure is that in some cases the scoring system fails to take into account the realism dimension (de Charms will report the Origin-Pawn data at a later symposium in this program).

Data relating the goal-setting measure, the I-E variable, and training provide support for the other hypotheses. Table 1 indicates that subjects who scored "internal" on the CPT tended to be more conservative than "externals" in their choice of problems ($p < .086$). The most striking finding is in the interaction between treatment and the CPT score. Those subjects in the control group who scored "external" chose the most difficult levels of problems ($p < .002$).

TABLE 1

Mean Difficulty Level Scores*
In Risk Taking Task

	CPT Score	Experimental Subjects	Control Subjects	Total
Males	Internal	3.88 (N = 27)	3.60 (N = 25)	3.75
	External	3.62 (N = 23)	4.34 (N = 25)	4.00
				All Males: 3.87
Females	Internal	3.51 (N = 24)	3.48 (N = 17)	3.49
	External	3.47 (N = 26)	3.84 (N = 33)	3.68
				All Females: 3.60
Both Sexes	Internal	3.71 (N = 51)	3.54 (N = 42)	3.63
	External	3.54 (N = 49)	4.06 (N = 58)	3.82 (
Total		3.63	3.84	All Subjects: 3.73

* Internal < External ($p < .086$)
Internal-External x Experimental Control ($p < .002$)

Table 2 describes the same behavior by pointing to the subject's actual probability of success (based on previous test's performance) in choosing his problems. Those data indicate that the "externals" in the control group chose much more risky problems than <u>all</u> "internals" and experimental "externals." After they chose those problems they were the least successful in solving them, apparently because they were too difficult. Table 3 presents the data on the number of problems solved out of ten.

TABLE 2

Mean Probability of Success Scores*
in Risk Taking Task

	CPT Score	Experimental Subjects	Control Subjects	Total
Males	Internal	.35 (N = 27)	.39 (N = 25)	.37
	External	.35 (N = 23)	.28 (N = 25)	.31
				All Males: .34
Females	Internal	.43 (N = 24)	.39 (N = 17)	.41
	External	.43 (N = 26)	.37 (N = 33)	.40
				All Females: .405
Both Sexes	Internal	.39 (N = 51)	.39 (N = 42)	.39
	External	.39 (N = 49)	.33 (N = 58)	.36
	Total	.39	.36	All Subjects: .375

*Internal < External ($p < .066$)
Internal-External x Experimental-Control ($p < .055$)

TABLE 3

Mean Problems Correct*
in Risk Taking Task

	CPT Score	Experimental Subjects	Control Subjects	Total
Males	Internal	5.00 (N = 27)	5.44 (N = 25)	5.21
	External	5.13 (N = 23)	3.40 (N = 25)	4.23
				All Males: 4.74
Females	Internal	5.42 (N = 24)	5.24 (N = 17)	5.35
	External	5.54 (N = 26)	4.82 (N = 33)	5.14
				All Females: 5.23
Both Sexes	Internal	5.20 (N = 51)	5.36 (N = 42)	5.27
	External	5.35 (N = 49)	4.21 (N = 58)	4.73
	Total	5.27	4.69	All Subjects: 4.98

*Internal > External ($p < .030$)
*Internal-External x Experimental-Control ($p < .004$)

If we focus our attention on the behavior of the students in the control group only, it will be easier to see how we have interpreted these results. In the control group, the "internal" subjects were more realistic than the "externals". They chose problems closer to their ability and they were more successful than the "externals" in solving those problems that they chose. The "externals," feeling powerless, evidently hoped that they would be lucky and solve the difficult problems.

In the experimental group, there was no difference between the "internal" and "external" subjects in goal setting behavior. Evidently the "externals" learned to set more realistic goals as a result of the training. This result backs up previous data in motivation training. Apparently it is those who need to learn the most about motivation who profit the most.

RELATIONSHIPS WITH ACADEMIC BEHAVIOR

One of the major concerns in the evaluation was whether the over-all training was effective in improving academic performance. Data presented in last year's symposium and to be presented by de Charms indicate that it was effective for the first year and was particularly effective with two year's training. The concern here, then, is not to look at over-all effects of the training, but to try to look at some of the internal relationships between the measures of motivation, goal setting, and academic performance.

One of the interesting findings with the goal-setting data was that all subjects tended to be somewhat risky. The average problem chosen had an empirical probability of .37 of being solved correctly. Because the more risky individuals had difficulty in performing successfully, it seemed reasonable to predict that, if this "risky" behavior were a fairly general characteristic, those "more risky" students would do worse in other academic work than more realistic, conservative students who didn't bite off more than they could chew.

In the 1969 symposium we presented data that supported this prediction. The relationship between goal-setting behavior and academic performance was especially evident in math. The more risky the individual, the worse he did on standardized math tests ($\underline{r} = -.44$).

In discussing the results of my dissertation, I noted the problem of the absence of the realism dimension in the CPT scoring system. I suggested that the CPT and the goal-setting measure be combined in some way to look at their relationship with academic performance. It seemed reasonable to predict that those students who felt potent ("internal") and were realistic (in goal setting) would do the best in academic behavior, for they would experience increasing amounts of success. On the other hand, those students who felt powerless ("external") and were very risky (in goal setting) would perform most poorly in school work. After repressing my dissertation and the data for several months, I dug up the courage to test my hypothesis.

Goal-setting behavior was split along a "conservative-risky" dichotomy. Those children who chose problems at levels more difficult than average were called "risky." Those who chose problems at less difficult levels were called "conservative." The children were grouped along that dimension, the I-E dimension, and the treatment conditions and their scores on the Iowa Test of Basic Skills and other academic measures were compared.

Table 4 presents the results on the Language subscale of the ITBS. Although the other scales and the other measures of performance are quite similar in form and direction to these results, they do not in all cases reach the desired level of statistical significance.

TABLE 4

Mean Language Scores* on
Iowa Test of Basic Skills (6th Grade)

	CPT Score	Experimental Subjects	Control Subjects	Total
Risky	Internal	6.61 (N = 21)	6.06 (N = 19)	6.35
	External	6.21 (N = 17)	6.29 (N = 37)	6.26
				All Risky: 6.30
Conservative	Internal	7.08 (N = 29)	6.27 (N = 23)	6.72
	External	6.65 (N = 31)	6.87 (N = 20)	6.75
				All Conservative: 6.73
Total Goal-Setting	Internal	6.88 (N = 51)	6.17 (N = 42)	6.56
	External	6.51 (N = 49)	6.51 (N = 58)	6.51
	Total	6.70	6.37	All Subjects: 6.53

*Conservative > Risky ($p < .025$)
Internal-External x Experimental-Control ($p < .025$)

Table 4 does not provide support for the hypothesis proposed. Although the conservative subjects did perform better than the risky subjects ($p < .025$), the overall performance of the "Internal" subjects did not surpass that of the "external" subjects.

It is the interaction between the treatment condition and the CPT score that spells out the answer why the Internals were not better overall. In the experimental group, the "Internals" did score quite a bit higher than the

"externals," but in the untrained group it was the "externals" who performed better. The interaction is statistically significant ($p < .025$) and provides the basis for an interesting conclusion. The conclusion is that in classrooms in which students are encouraged to take personal responsibility and act "potent", those "internal" students actually do better than the more powerless peers. In untrained, more traditional classrooms, where the students are indeed powerless, the "internal" (potent) students do not fare as well as either the trained "internals" or their "external" peers.

CONCLUSION

The data in this study are quite complex and it is difficult to weave them into a neat package. Nevertheless, some fairly safe and some rather tentative conclusions may be reached at this time.

1.) It appears that the motivation training program has been effective in a number of ways. Besides improving academic performance, the training has helped students to set more realistic goals and to be more successful in reaching them.

2.) Goal setting strategies appear to be related to academic performance. Children who set very high goals or implore very risky strategies tend to perform poorly in school work.

3.) One's feeling of potency seems to be related to goal setting behavior. More potent subjects set realistic goals. Powerless subjects set very high goals where their chances of success are small.

4.) The training has complex effects on the behavior of children along the I-E dimension. Although the general score was not modified, the training seems to have helped the powerless subjects to be more realistic in goal setting. On the other hand, the training seemed to help the potent children rise to the top and excel academically.

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